



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,443	03/09/2001	Rajendra D. Pendse	CPAC 1001-1US	7241

22470 7590 12/04/2002

HAYNES BEFFEL & WOLFELD LLP
P O BOX 366
HALF MOON BAY, CA 94019

EXAMINER

YEVSNIKOV, VICTOR V

ART UNIT	PAPER NUMBER
----------	--------------

2825

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/802,443

Applicant(s)

PENDSE ET AL.

Examiner

victor v yevsikov

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-11 and 13-19 is/are rejected.
- 7) ☒ Claim(s) 7, 8 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6, 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "substrate", "cavity" and "fill materials" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 6, 9, 10 and 13 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 6, 9, 10 and 13, the applicant refers to terms "substrate" and "fill materials". These terms are confusing and not clear. In reviewing the drawings and the specification, the above passages are not distinctly disclosed in such a manner to understand the metes and bounds of applicant's claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2825

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-5 and 11 are rejected under 35 U.S.C. 102(a) as being anticipated by Lin et al. (U.S. 6,258,622 B1).

With respect to claims 1-5 Lin discloses a method for connecting a die to a leadframe, comprising:

forming metal bumps 4 on the die comprise stud bumping (fig. 7), electroplating and gold (col.2, lines 19-29),

contacting the bumps with binding fingers 2 on a leadframe 1,

heating the bumps, and

pressing the bumps against the bonding fingers.

Reference: figs. 3-7; col. 3-4, lines 12-14.

With respect to claim 11 Lin discloses a method forming a plurality of chip-in-leadframe packages, comprising:

providing a plurality of leadframes each comprising a set of bonding fingers,

providing a plurality of dies each having a set of metal bumps formed thereon,

positioning the leadframes onto a support, placing the dies onto the leadframes such that each set of bumps contacts a set of bonding fingers, heating the bumps, and pressing the dies against the leadframes to compress the bumps onto the bonding fingers.

Reference: figs. 3-7; col. 3-4, lines 12-20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Kinsman (US 5,789,803).

Lin teaches the features detailed previously but lacks a discussion on a method comprising the steps of singulating the chip-in-leadframe packages.

However, Kinsman ('803) teaches a method comprising the steps of singulating the chip-in-leadframe packages (abstract; col.3, lines 7-11).

Therefore, it would have been obvious to one of ordinary skill in the art to use the steps of singulating the chip-in-leadframe packages as taught by Lin/Kinsman ('803) for provides process as is routine in the art.

Claims 16 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Kinsman (US 5,789,803) and in view of Kinsman (6,172,419 B1).

Art Unit: 2825

Lin/Kinsman ('803) teach the features detailed previously but lacks a discussion on a package wherein the die is situated cavity upward or downward in relation to the set of bonding fingers.

However, Kinsman ('419) teaches the package wherein the die is situated cavity upward or downward in relation to the set of bonding fingers (col.4, lines 50-52; col.5, lines 36-38).

Therefore, it would have been obvious to one of ordinary skill in the art to use the cavity upward or downward as taught by Lin/Kinsman ('803)/Kinsman ('419) for provides an effective process for packaging.

Claims 18 and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Kinsman (US 5,789,803), in view of Kinsman (6,172,419 B1) and in view of Smith (6,441,488 B1).

Lin/Kinsman('803)/Kinsman ('419) teach the features detailed previously but lacks a discussion on a package wherein the leads fan inwardly or downwardly.

However, Smith teaches the package wherein the leads fan inwardly or downwardly (col.3, lines 32-36; col.4, lines 51-53).

Therefore, it would have been obvious to one of ordinary skill in the art to use the leads fan inwardly or downwardly as taught by Lin/Kinsman ('803)/Kinsman ('419)/Smith for provides an effective process for packaging.

Allowable Subject Matter

Art Unit: 2825

Claims 7, 8 and 12 objected to as being dependent upon a rejected base claims 1 and 11, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior art does not teach the method wherein the heating step and the pressing step are carried out at a temperature and pressure sufficient to result in deformation of the bump material to an extent of between about 15 % and about 20 % of the original bump height and wherein the heating step comprises heating the bumps to a temperature in the range about 100°C to about 400°C, and the pressing step comprises applying a force equivalent to vertically loading in the range about 10 grams to 250 grams per bump.

masking the portion of the gate adjacent the contact region comprises masking the second region of the gate.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor Yevsikov whose telephone number is 703 305-0758. The examiner can normally be reached on 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 703 305-1323. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9318 for regular communications and 703 872-9319 for After Final communications.

Art Unit: 2825

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-1782.

Victor Yevsikov

November 21, 2002

V. Yevsikov

Matthew Smith

MATTHEW SMITH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800